2005-PUNJAB TECHNICAL UNIVERSITY

B.TECH DEGREE EXAMINATION

MANUFACTURING PROCESS

(MECHANICAL ENGINEERING)

TIME-3HOUR
MARK-60

Note: Section A Is Compulsory. Attempt Any Four Questions From Section B And Any Two From Section C.

SECTION A MARKS 2 EACH

1. (a) What is meant by production rate and volume of production?

(b) Under what circumstances, wooden patterns are prepared over metallic patterns?

(c) Differentiate between the melting process using cupola and arc furnaces.

(d) What is the function of gates in a mould?

(e) Under what circumstances, machine moulding is preferred?

(f) What is meant by machinability?

(g) What are the characteristic features of turrets?

(h) Name the conventional processes to attain flat surfaces.

(i) What is the basic difference between a shaper and a planer.

(j) Explain why superfinishing processes are used after machining.

SECTION B MARKS 5 EACH

2. Describe shell moulding in brief and when it is used.

3. Draw the neat sketch of cupola. In what ways is the melting cupola differ from other types of melting furnaces?

4. Determine the cutting time required in face milling a workpiece 400 mm diameter and 250 mm wide with a face mill of 100 mm diameter having a 8 teeth. Depth of cut is 3 mm, cutting speed = 75 m/min and feed = 0.07 mm/tooth.

5. Calculate the h.p. required to drill a 7/8 inch hole in M.S. at 250 r.p.m. and a feed of 0.011 inch per revolution. Find also the power absorbed per unit of metal removed per minute. Take constant 'C' for M.S. as 1800.

6. Describe the method of selection of grinding wheel according to Indian standard.

SECTION C MARKS 10 EACH

7. What are various pattern allowances? Describe briefly. Also explain various types of patterns along with their utilities.

8. (a) Explain various angles of a single point cutting tool with the help of a sketch.

(b) Estimate what cut would be taken on a lathe turning bronze bars at 0.625 mm feed and 20 meters per min, if

3.4 h.p. were available and 30% of the power were lost in friction. Assume K for bronze = 16000

9 (a) Define various finish processes like honing, lapping, buffing and superfinishing. What are their applications?

(b) Calculate the differential indexing to give 73 divisions.